Patent Application
Docket No. UF-206X
Serial No. 09/172,689

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner	:	Susan B. McCormick
Art Unit	:	1661
Applicant	:	Eric B. Bish, Daniel J. Cantliffe, Craig K. Chandler
Serial No.	:	09/172,689
Filed	:	October 14, 1998
For	:	Strawberry Transplant Conditioning For Flower Induction

Assistant Commissioner for Patents
Washington, D.C. 20231

DECLARATION OF CRAIG K. CHANDLER, Ph.D. UNDER 37 C.F.R. § 1.132

Sir:

I, Craig K. Chandler, Ph.D., of the University of Florida, hereby declare:

THAT, I am a named inventor on the above-referenced patent application;

THAT, I have received the following degrees:

B.S.	Plant Pathology University of Florida	1976
M.S.	Horticulture (Breeding & Genetics) University of Florida	1980
Ph.D.	Horticulture (Breeding & Genetics) University of Maryland	1983

THAT, I have been employed professionally as follows:

2002 - present	Professor, University of Florida
1992 - 2002	Associate Professor, University of Florida

1987 – 1992	Assistant Professor, University of Florida
1983 – 1987	Research Scientist, Ohio State University
1980 – 1983	Research Assistant, University of Maryland
1978 – 1980	Research Assistant, University of Florida
1977 – 1978	County Extension Agent, University of Georgia

THAT, I have a been a member of the following professional and scholarly organizations:

Associate Editor of Journal of ASHS (genetics and breeding) 2000 – present

American Society of Horticultural Science: 1978 to present.

American Pomological Society: 1979 to present

Florida State Horticultural Society: 1987 to present

Member of organizing committee for the Second International Strawberry Symposium, held in Baltimore, Maryland, September 13-18, 1991

Co-chair of the Fourth North American Strawberry Conference, held February 14-16, 1995 in Orlando, Florida

THAT, I have authored several publications, including publications in refereed journals and a book contribution. Some of these publications are:

1. Chandler, C.K., E.E. Albregts, C.M. Howard, and A. Dale. 1989. Influence of propagation site on the fruiting of 3 strawberry clones grown in a Florida winter production system. *Proc. Fla. State Hort. Soc.* 101:310-312.

2. Chandler, C.K. 1991. North American strawberry cultivars, p.60-65. In A. Dale and J.J. Luby (eds.). The strawberry into the 21st century. Timber Press, Portland, Oregon

3. Chandler, C.K., P.J. Stoffella, E.E. Albregts, and C.M. Howard. 1991. Stability of strawberry genotypes in the annual hill cultural system. *HortScience* 26:1409-1411.

4. Chandler, C.K., E.E. Albregts, and C.M. Howard. 1991. Planting date affects early season strawberry production in west central Florida. *Proc. Fla. State Hort. Soc.* 104:227-228.

5. Chandler, C.K., J.C. Sumler, Jr., and E.E. Albregts. 1993. Breeding strawberries in a subtropical environment. *Acta Horticulturae* 348:139-141.

6. Shanks, C.H. Jr., C.K. Chandler, E.D. Show, and P.P. Moore. 1995. *Fragaria* resistance to spider mites at three locations in the United States. *HortScience* 30:1068-1069.

7. Chandler, C.K., E.E. Albregts, C.M. Howard, and J.K. Brecht. 1997. 'Sweet Charlie' strawberry. *HortScience* 32:1132-1133.

8. Chandler, C.K., D.E. Legard, and C.A. Sims. 1997. 'Rosa Linda' strawberry. *HortScience* 32:1134-1135.

9. Sims, C.A., C.K. Chandler, J.S. Eastridge, and R.R. Golaszewski. 1997. Seasonal changes in fruit quality of several strawberry genotypes grown in Florida. *Advances in Strawberry Research* 16:48-56.

10. Medina, J.L., P.P. Moore, C.H. Shanks Jr., F.F. Gil, and C.K. Chandler. 1999. Genotype-environment interaction for resistance to spider mites in *Fragaria*. *J. Amer. Soc. Hort. Sci.* 124:353-357.

11. Chandler, C.K., D.E. Legard, D.D. Dunigan, T.E. Crocker, and C.A. Sims. 2000. 'Strawberry Festival' strawberry. *HortScience* 35:1366-1367.

12. Chandler, C.K., D.E. Legard, D.D. Dunigan, T.E. Crocker, and C.A. Sims. 2000. 'Earlibrite' strawberry. *HortScience* 35:1363-1365.

13. Chandler, C.K., D.E. Legard, and J.W. Noling. 2001. Performance of strawberry cultivars on fumigated and nonfumigated soil in Florida. *HortTechnology* 11:44-46.

14. Stapleton, S.C., C.K. Chandler, D.E. Legard, J.F. Price, and J.C. Sumler. 2001. Transplant source affects fruiting performance and pests of 'Sweet Charlie' strawberry in Florida. *HortTechnology* 11:61-65.

15. Bish, E.B., D.J. Cantliffe, and C.K. Chandler. 2001. A system for producing large quantities of greenhouse grown strawberry plantlets for plug production. *HortTechnology* 11:636-638.

THAT, through my years of research, I have kept up to date on the technical literature and maintained contact with experts in the field by participating in professional meetings and seminars, and by direct personal contact. As a result, I am familiar with the general level of skill of those working in the field of horticulture;

THAT, I have read and understood the specification and claims of the subject application and the Office Action dated March 12, 2002;

AND, being thus duly qualified, do further declare:

1. Our invention is based on the surprising discovery that strawberry transplants can be conditioned by growing them for a period of at least six weeks at a daytime temperature reaching at least 30° C, followed by a second growing period where the daytime temperature is reduced to less than 20° C. This abrupt reduction in daytime temperature induces flowering in the strawberry plants very effectively.

2. In the Office Action, the Reviewer cites the Heide publication as describing induction of flowering in strawberry plants by reducing temperature and photoperiod. However, as shown in Figures 1-4 of the Heide publication, the experiments involved subjecting a sample of eight to ten plants to a constant temperature of 12° C, 18° C, or 24° C, for a daylight period of 10, 12, 14, 16, or 24 hours, depending on treatment group. Following treatment, each sample was then returned to 24° C and continuous light to observe time of flowering. As described in the Materials and Methods section at page 22, lines 8-9, of the Heide publication, "temperature fluctuations were usually kept within ± 0.5° C." No experiment was conducted to determine the effect of growing plants for a growing period (particularly, not a growing period of at least six weeks) at a daytime temperature that reaches at least 30° C and reducing the daytime temperature in a subsequent growing period to less than 20° C. In the Heide

publication, different plant samples were subjected to a constant temperature (12° C, 18° C, or 24° C) for a particular daylight period (10, 12, 14, 16, or 24 hours), depending on each particular sample's treatment regimen. The effect of abruptly reducing the daytime temperature for a particular plant (or sample of plants) from one growing period to the next growing period was not evaluated in the Heide publication, and the experimental data do not suggest doing so. Thus, although various optimal growth parameters (temperature and daylight period) were observed for the various cultivars tested, nothing within the Heide publication suggests using the conditioning method of our invention, which utilizes an abrupt reduction in daytime temperature to induce flowering.

3. The Darrow publication, which is also cited in the Office Action, only indicates that strawberry plants can be grown within a wide variety of temperatures (*e.g.*, -60° F to 115° F), as demonstrated by the climates to which they have adapted. Whether looked at individually, or taken together, the Heide and Darrow publications do not suggest that abruptly reducing daytime temperature between growing periods would induce flowering, and particularly not at the temperatures stated in the claims.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or of any patent issuing thereon.

Further declarant sayeth naught.

Signed: Craig K Chandler
Craig K. Chandler, Ph.D.

Date: 9/12/02